

SHALLOW WATER MANAGEMENT FOR WILDLIFE

(Acre)
Code 646

Natural Resources Conservation Service
Conservation Practice Standard

I. Definition

Managing shallow water on agricultural lands and moist soil areas for wildlife habitat.

II. Purpose

To provide open water areas on agricultural fields and moist soil areas to facilitate waterfowl resting and feeding.

To provide habitat for reptiles and amphibians and other aquatic species which serve as important prey species for waterfowl, raptors, herons, and other wildlife.

III. Conditions Where Practice Applies

On agricultural and moist soil areas, on both hydric and non-hydric soils, where water can be impounded or regulated by diking, ditching, or flooding.

This practice can be used to facilitate the conservation of declining wetland dependent and threatened and endangered species.

This practice applies where the intended purpose is to create and/or manage shallow water.

This practice does not apply to:

- NRCS, Field Office Technical Guide (FOTG) Section IV, Standard 657, Wetland Restoration, intended to rehabilitate a drained or degraded wetland where the soils, hydrology, vegetative community, and biological habitat are returned to original conditions; or
- NRCS FOTG Standard 659, Wetland Enhancement, intended to rehabilitate a degraded wetland where specific functions and/or values are enhanced beyond original conditions.

III. Federal, State, and Local Laws

Users of this standard should be aware of potentially applicable federal, state and local laws, rules, regulations or permit requirements governing shallow

water management for wildlife. This standard does not contain the text of federal, state, or local laws.

IV. Criteria

A. General Criteria Applicable To All Purposes Above

1. Soils should have moderately slow permeability (less than 0.6 inches per hour) or seasonal high water table, to inhibit subsurface drainage and allow for maintenance of proper water levels.
2. Shallow water impoundments require an adequate water supply for re-flooding during periods of planned inundation. This water supply can be a result of flooding, overland run-off, or a pumped source. An adequate method for dewatering the impoundment is required during planned drawdowns.
3. Water levels should be maintained at an average depth of 6 inches over 50 percent or more of the planned inundation area, with a range in depth of 1 to 18 inches.
4. Landowner shall obtain all local, state, and federal permits required for construction, reflooding, or dewatering.
5. Water control structures and drainage modifications shall comply with all local, state, and federal regulations (e.g. state drainage law).
6. NRCS FOTG Standards 533, Pumping Plant for Water Control; 587, Structure For Water Control; and 657, Wetland Restoration, will be used as appropriate. Refer to Chapter 6 of the Engineering Field Handbook, "Structures," for additional design information. Existing drainage systems will be utilized, removed, or modified as needed to achieve the intended purpose.

7. Existing wetlands will be preserved and protected from being manipulated or used in a manner which would reduce the functions (type or capacity) the wetlands are providing.
8. Water control structures shall be designed on an individual job basis, or applicable NRCS standard drawings shall be adapted, to meet site conditions and functional requirements. They shall be part of an approved overall engineering plan for the site.
9. All disturbed areas will be seeded to wildlife friendly vegetation. Vegetation used will be adapted for use on the local soil/site conditions. Disturbed areas will be vegetated according to a re-vegetation plan. Use NRCS FOTG Standard 327, Conservation Cover, unless the area is subject to frequent overflows or spillway protection is needed, then Standard 342, Critical Area Planting, will be used. Native plant materials will be used whenever possible to provide the intended protection.

V. Considerations

For optimum site conditions and management considerations for shallow water impoundments see Table 1.

To insure that foods are available to dabbling ducks and shorebirds, impoundments should be designed to be gradually flooded to an average depth of 3 to 8 inches over a majority of the impoundment.

Consider the effects of the timing of the flooding and drawdown, as well as the type of drawdown, on target plant species and plant species composition (moist soil areas).

Consider disking 25 to 40 percent of the area on a rotational basis to prevent woody encroachment, create mud flats, and provide a variety of annual seed bearing herbaceous vegetation.

Consider the species flooding tolerances and the composition of seed in the soil at the site (moist soil areas).

Consider Wisconsin Biology Technical Note 2, Microtopography Development, on nearly level sites to create a greater diversity of habitats while keeping the water depths within the optimum range (requiring

fewer dikes). Sites with steeper grades will be more expensive to construct than flatter grades because more dikes will be required to maintain the desired water depths.

Consider effects on wetlands or wildlife habitats that would be associated with the practice.

Consider the need for buffer practices beneficial to wildlife around the perimeter of the site. Plan practices such as NRCS FOTG Standards 393, Filter Strip; 386, Field Border; and/or 327, Conservation Cover, to create a vegetative buffer between the management unit and adjacent land uses. This buffer should be at least 30 feet wide, or wider, depending on its purpose.

Consider the effects of residual herbicides (moist soil areas).

Consider effects on movement of dissolved substances to groundwater and to downstream surface waters.

Consider effects on downstream flows that would affect other water uses or users.

VI. Plans and Specifications

Plans and specifications for this practice shall be prepared for each site. Plans and specifications shall be recorded using approved specification sheets, job sheets, technical notes, narrative documentation in the conservation plan, or other acceptable documentation.

NRCS staff are encouraged to work closely with the NRCS biologists, FWS biologists, WDNR wildlife managers, or other wetland specialists in developing site specific plans and specifications.

Plans and specifications for installing structures for water control shall be in keeping with this standard and shall prescribe the requirements for applying the practice to achieve its intended purpose. The plan shall specify the location, grades, dimensions, materials, hydraulic and structural requirements for the individual structure, and the timing or sequence of installation activities. Provisions must be made for necessary maintenance.

VII. Operation and Maintenance

The purpose of operation and maintenance is to insure that the practice functions as intended over time.

A plan for the operation, maintenance, and management of the shallow water or moist soil area

shall be developed and recorded using approved job sheets, technical notes, or other forms of acceptable documentation. The plan shall include monitoring and management of the overall site, as well as structural and vegetative measures. An annual inspection should be made of all structural and vegetative practices.

Actions will be carried out to ensure the practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation) such as water level manipulation, moist soil management, planting waterfowl food crops, managing crop residue, prescribed fire, and disking. Repair and upkeep of the practice (maintenance) shall be carried out as needed, such as repair or replacement of vegetative or structural components.

Biological control of undesirable plant species and pests (e.g., using predator or parasitic species) shall be implemented where available and feasible.

Any use of fertilizers, mechanical treatments, prescribed burning, and pesticides and other chemicals shall not compromise the intended purpose of the shallow water or moist soil area.

IX. References

Eldridge, Jan. 1990. Management of Habitat for Breeding and Migrating Shorebirds in the Midwest, 13.2.14 Fish and Wildlife Leaflet 13, Waterfowl Management Handbook. U.S. Fish and Wildlife Service. Available on the Internet at www.usgs.gov/wmh/Default.htm.

Fredrickson, Leigh H. 1991. Strategies for Water Level Manipulations in Moist-soil Systems, 13.4.6 Fish and Wildlife Leaflet 13, Waterfowl Management Handbook. U.S. Fish and Wildlife Service. Available on the Internet at www.usgs.gov/wmh/Default.htm.

Fredrickson, Leigh H. and Frederic A. Reid. 1988. Waterfowl Use of Wetland Complexes, 13.2.1 Fish and Wildlife Leaflet 13, Waterfowl Management Handbook. U.S. Fish and Wildlife Service. Available on the Internet at www.usgs.gov/wmh/Default.htm.

Kelley, J.R. Jr., M.K. Laubhan, F.A. Reid, J.S. Wortham, and L.H. Fredrickson. 1990. Options for Water-level Control in Developed Wetlands, 13.4.8 Fish and Wildlife Leaflet 13, Waterfowl Management Handbook. U.S. Fish and Wildlife Service. Available on the Internet at www.usgs.gov/wmh/Default.htm.

Ringelman, James K. 1990. Managing Agricultural Foods for Waterfowl, 13.4.3 Fish and Wildlife Leaflet 13, Waterfowl Management Handbook. U.S. Fish and Wildlife Service. Available on the Internet at www.usgs.gov/wmh/Default.htm.

USDA, NRCS National Engineering Handbook, Part 650, Engineering Field Handbook, Chapter 6, Structures, and Chapter 13, Wetland Restoration, Enhancement, or Creation.

USDA Natural Resources Conservation Service, Part 650, Engineering Field Handbook,

USDA, NRCS Wisconsin Field Office Technical Guide (FOTG), Section IV, Practice Standards and Specifications.

Table 1
Important Considerations in Evaluating Wetland Management Potential.

Factors	Optimum Condition
Water supply	<ul style="list-style-type: none"> • Independent supply into each unit. • Water supply enters at highest elevation.
Water discharge	<ul style="list-style-type: none"> • Independent discharge from each unit • Discharge at lowest elevation for complete drainage. • Floor of control structure set at correct elevation for complete drainage
Water control	<ul style="list-style-type: none"> • Stoplog structure allowing 2-inch changes in water levels. • Adequate capacity to handle storm events
Optimum unit size	<ul style="list-style-type: none"> • 5 to 100 acres
Optimum number of units	<ul style="list-style-type: none"> • At least 5 within a 10-mile radius of units

Fredrickson, Fish and Wildlife Leaflet 13.4.6.